

## WAVEGUIDE WAVELENGTH LOCKER

## ABSTRACT OF THE DISCLOSURE

A tunable laser module includes a laser operating at a first wavelength. A wavelength locker includes a planar silica waveguide that is coupled to the laser. The wavelength locker provides an error signal that is used to tune the first wavelength of the laser to a desired wavelength. The wavelength locker and one or more detector(s) generate the error signal based on a difference between the first wavelength value and the desired wavelength value. A controller is connected to the waveguide wavelength locker and the laser. The controller generates a laser control signal based on the error signal that adjusts the first wavelength. The waveguide wavelength locker can alternately include first and second spaced gratings, Mach-Zehnder interferometers with different asymmetries, passive waveguide(s), and combinations thereof. The laser is mounted on a first temperature controlled package and the waveguide wavelength locker is mounted on the first temperature controlled package.